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TECHNIQUE OF THE MANUAL TREATMENT OF CERTAIN FORMS OF ULCERATION OF THE SKIN.

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For the purposes of description and the consideration of their pathology and therapeutics, the many varieties of ulcers may be grouped under the following three types: 1. Simple inflammatory, e. g., the healing, the chronic, etc. 2. Infective or specific, e. g., syphilitic, lupoid, tuberculous, etc. 3. Malignant, e. g., epitheliomatous, rodent, etc.

In this paper which only aims at clearly and simply expounding certain main principles and does not assume to be minutely exhaustive, I shall confine myself to considering the manual treatment of the first type of ulcers only, although I have excellent reason to believe that at any rate the tuberculous forms mentioned as belonging to the second main type are similarly amenable to such treatment.

The cure or amelioration of disease by scientifically applied movement owes its origin to the Swede, P. H. Ling (1776-1839), who was the founder and first principal of the Royal Central Gymnastic Institute of Stockholm, built specially for him in 1813. His methods have since then undergone a great amount of modification and development chiefly at the hands of his son, Hj. Ling, L. G. Branting, and H. Kellgren. The question of the gymnastic treatment as applied to ulcers seems, however, to have received very little attention.

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On searching medical literature for any mention of such treatment scarcely anything is to be found dating from before the year 1885, and not much after that. Hünerfauth (1), in his handbook (1887), referred to the use of massage for varicose ulcers in words implying that it was at the time a recently introduced method. A. Kellgren (2) referred, in 1888, to vibrations executed with the palm of the

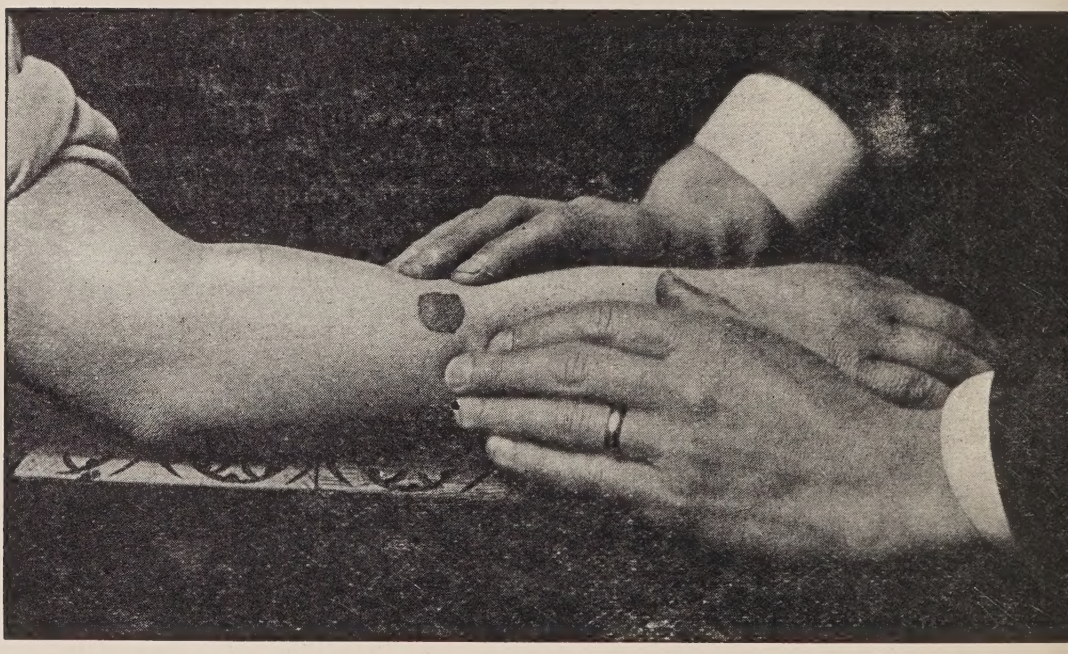

FIG. 1.—Stationary vibration around the ulcers.
(Manual Treatment of Ulcers.)

hand being applied over ulcers. Kleen (3), in 1894, stated that he treated ulcers of the leg with centripetal effleurage and small frictions on and around the ulcer. Erdinger's thesis (4), of 1893, was the first larger work on massage for ulcers; the author's treatment consisted of an introductory effleurage followed by pétrissage of the parts in

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the neighborhood of the ulcers: in some cases the margins of the ulcers were subjected to massage, a piece of lint being first interposed between the ulcer and the hand of the operator.

During the last ten years a few articles bearing on the subject have appeared here and there, scattered through various journals, but effleurage and pétrissage are generally the only manipulations that appear to have been employed by the authors. In Sweden, even at the present day, the application of mechanotherapy to ulcers seems to have attracted practically no notice; for example, Wide's handbook (5), one of the accepted textbooks, is silent upon the subject.

In 1903 (6) I described certain forms of vibrations, and also referred to their use in the treatment of ulcers. The present article is intended to amplify these earlier remarks, and to supply a description of the technique of the manual treatment of ulcers as employed by H. Kellgren.

The manual treatment of ulcers consists of: I. Local manipulations on and around the ulcer; II, local manipulations on the affected limb or part of the body; III, general (constitutional) manipulations.

I. Local manipulations on and around the ulcer.

1. Stationary vibrations around the ulcers. Either the tips or a portion of the palmar aspect of the fingers of one or both hands (see Figs. 1, 2, and 3) are placed above or below, over either side of or around the ulcer. The fingers are then set into rhythmical vibration; but the amount of pressure applied meanwhile must be small, so that there is no chance of any impediment arising in the lymphatic or venous circulation.

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The practised hand can execute these stationary vibrations of such small amplitude that they are scarcely perceptible to the naked eye, although at the same time they can be plainly felt, even at some distance from the part vibrated. (I frequently demonstrate this by means of very fine vibration on the eye; such as are practically invisible to the observer can be clearly felt by his placing the hand

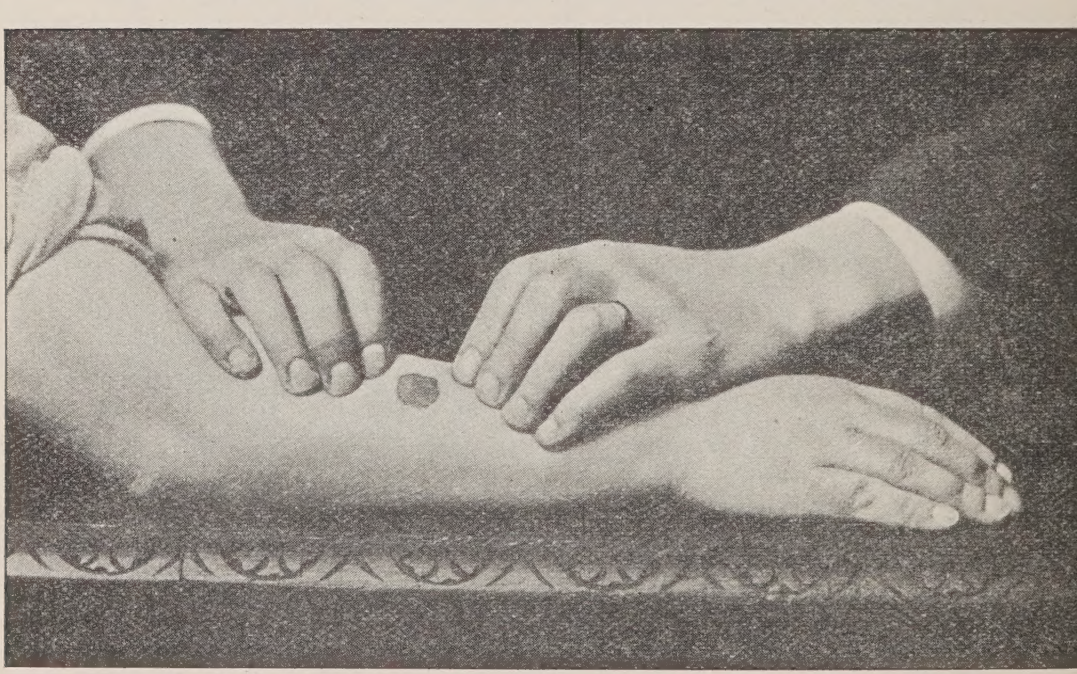

FIG. 2.—Stationary vibration around the ulcers.

over the occiput.) It is unusual to have to employ such fine vibrations for more than the first sitting or two, as it will be found that the patient can soon bear stronger vibrations with perfect ease.

The rapidity of these vibrations should be approximately from ten to twelve in a second.

2. Concentrating vibrations. Either one or else both hands can be employed.

(a) In the first of these two cases, the tips of the fingers are spread out so as to lie around the ulcer at a little distance from it (see Fig. 3). The vibrations are then set up and during their progress the fingers by means of flexion at the metacarpo-phalangeal joints, and to a lesser extent at the interphalangeal joints (if the latter are flexed too much, scratching of the skin will result), are grad-

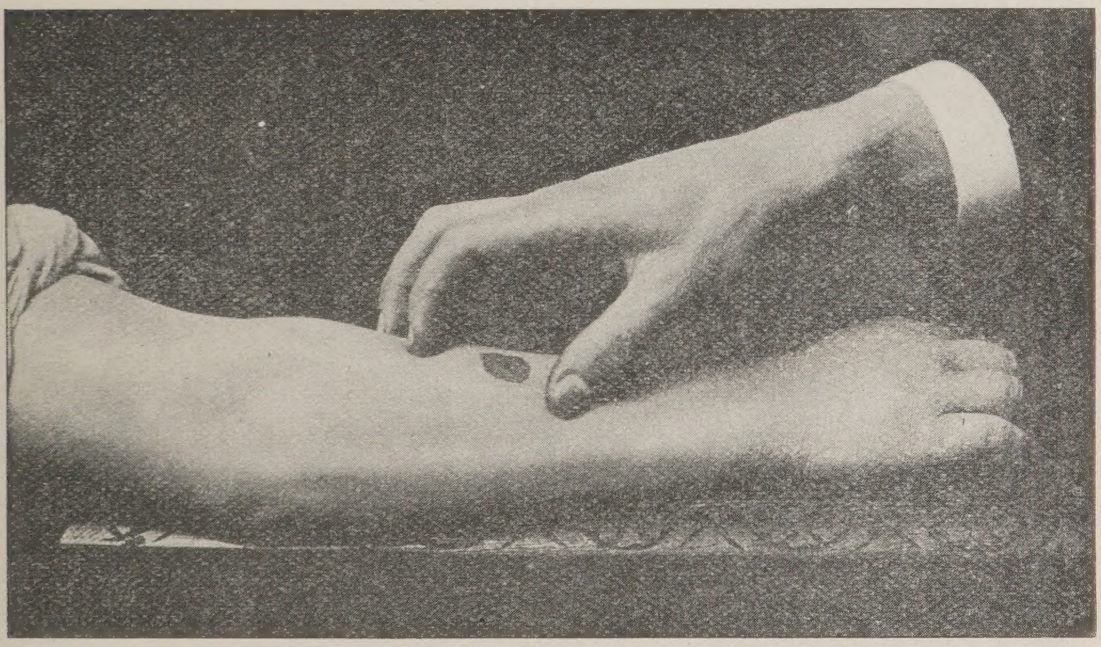

FIG. 3.—Concentrating vibration.

ually approximated around and toward the ulcer, the amount of pressure applied being concurrently increased (see Fig. 4). The fingers having arrived at the edge of the ulcer, or as near to it as possible without causing pain, the pressure is relaxed; the fingers are brought back to their original position, and the manipulation repeated.

(b) In the second case, the finger tips of the two hands are placed respectively on either side of, or

above and below, the ulcer, as in Figs. 1 and 2, and during the progress of the manipulation the fingers of the respective hands gradually approach each other. The nature of the manipulation is as described under (a).

During the actual performance of the concentrating vibrations, the fingers either travel forward over the skin, or else travel together with the skin

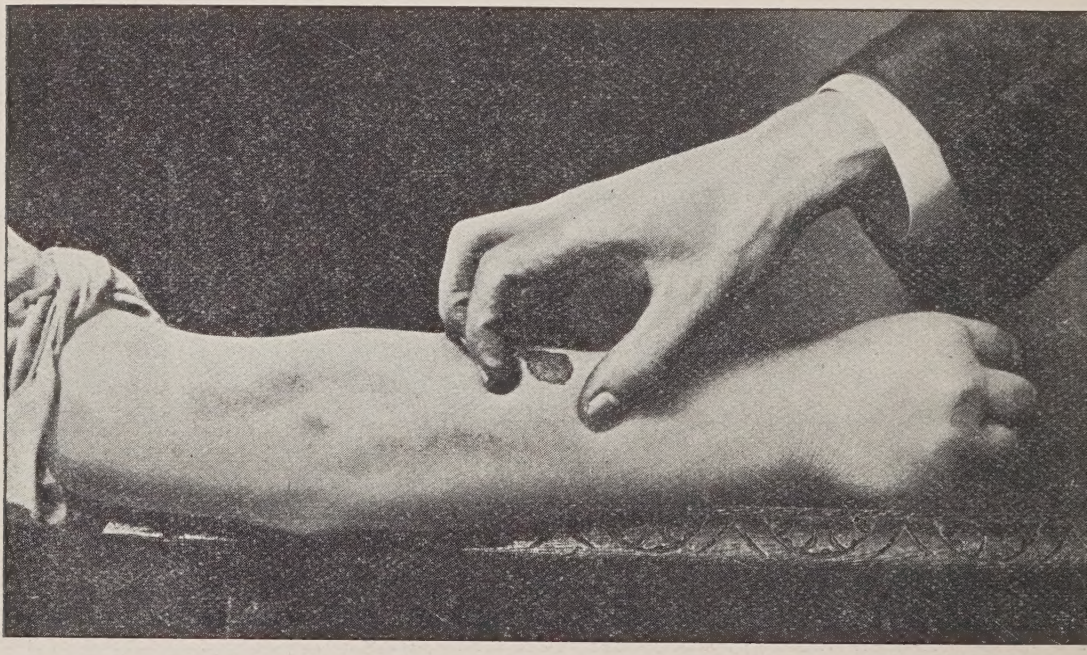

FIG. 4.—Concentrating vibration.

(as one), over the underlying structures; which of these two methods should be employed depends upon the extensibility of the skin, the site of the ulcer, etc.

In the majority of cases the immediate visible result of these concentrating vibrations will be the bathing of the margins of the ulcer in a clear fluid (lymph), which latter may even, if the ulcer is not very large, have spread over its entire surface.

This is a most favorable result, which should always be striven for, but which up to the present seems practically to have escaped observation and record.

The rapidity of the vibrations should be as before specified (from ten to twelve in a second), and the duration of each "concentration" should be from one to four seconds.

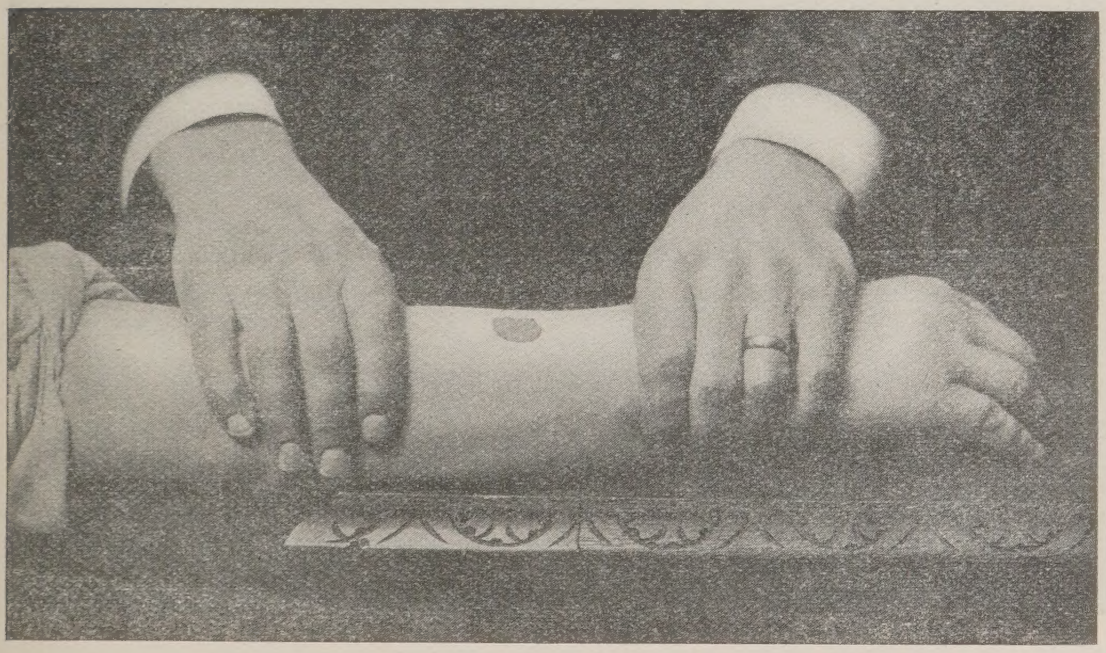

FIG. 5.—Vibration with simultaneous to and fro movement of the skin.

3. Stationary vibrations on the ulcer itself. A piece of lint is placed between the fingers of the operator and the ulcer; then vibrations, fine at first but gradually increasing in strength, are set up. The finger tips or palmar aspect of the fingers in whole or in part of one or both hands may be employed; the exact method is chiefly conditioned by the size of the ulcer.

4. Vibration with simultaneous to and fro movement of the skin. For these it is best to use both hands. The palmar aspect of the fingers and part of the hand are employed; they are placed either above and below or on either side of the ulcer, or, better still, the one and the other alternately. As soon as the vibrations have been set up, the hands of the operator are alternately regularly approxi-

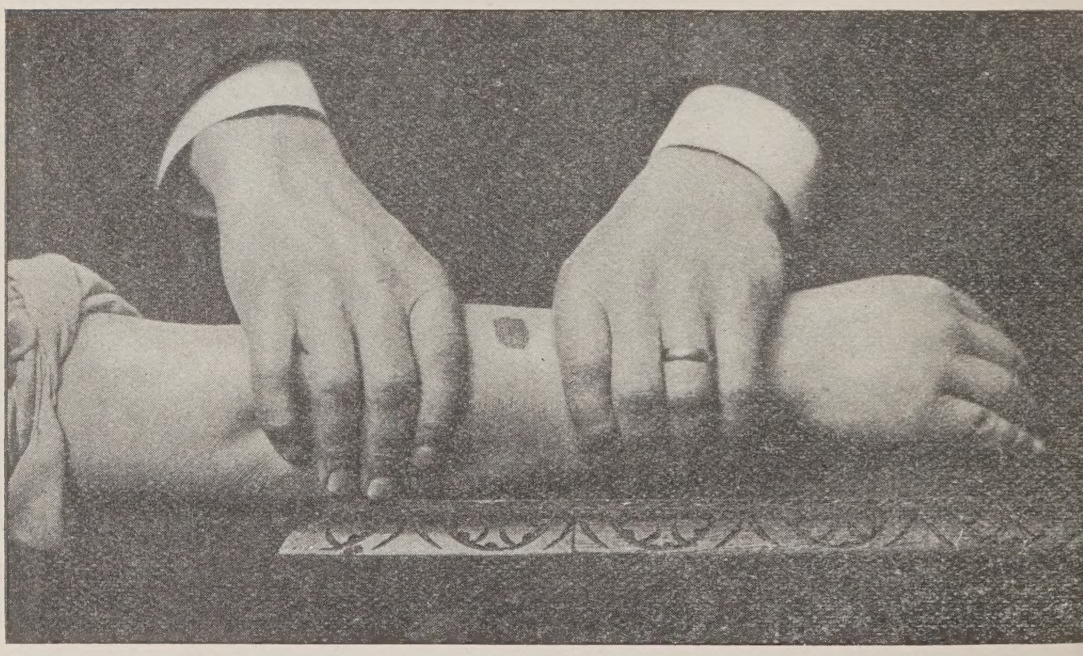

FIG. 6.—Vibration with simultaneous to and fro movement of the skin.

mated and separated. Figs. 5 and 6 show the movement in a somewhat exaggerated form for the sake of illustration. The effect of the to and fro movement is to subject the skin around the ulcer to alternate elongation and shortening.

This type of vibration cannot be made use of if the patient is in much pain, and in any case must be executed lightly and with as little jerking as possible.

The immediate visible effect is as described under heading No. 2.

Simultaneous to and fro movement without vibration can of course be applied should the manipulator deem it advisable.

The speed of this movement should be so regulated that each half takes from one half to one sec-

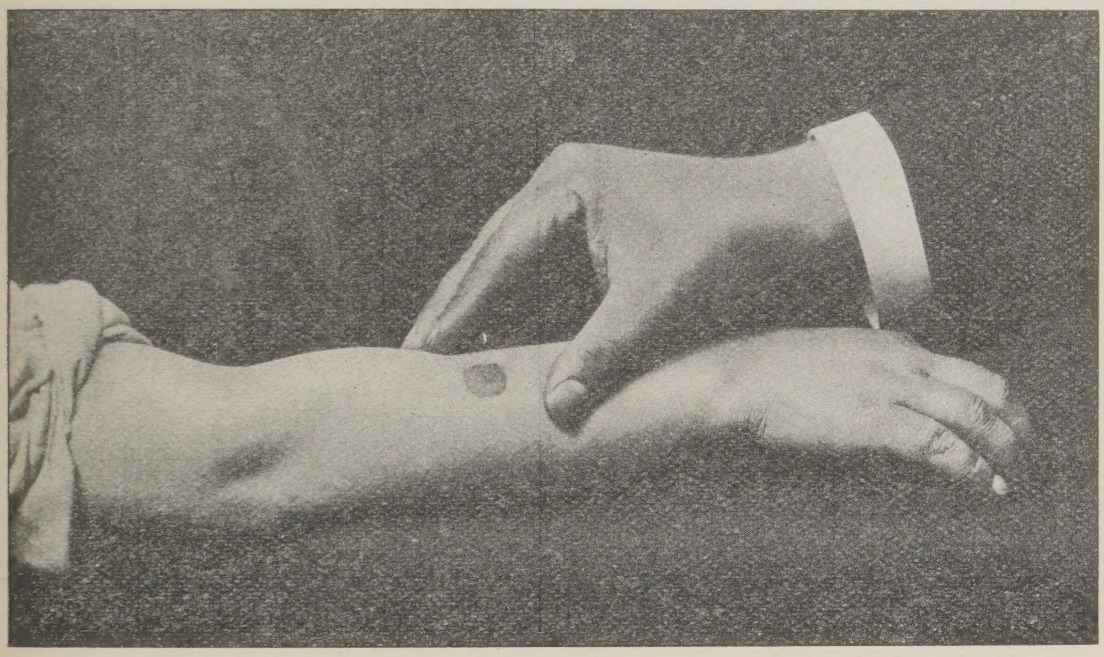

FIG. 7.—Running centripetal vibration, interphalangeal joints of operator are extended.

ond; after each completion there should be a pause of from one to two seconds.

5. Running centripetal vibrations. The hand is placed so that the metacarpophalangeal joints are in semiflexion. The interphalangeal joints are either extended (Fig. 7) so that the finger tips lie on the skin, or semiflexed (Fig. 8) so that the dorsal aspect of the nails lies on it; in the former case the resulting manipulation is carried out at a slow rate, in the

latter at a more rapid one. The fingers are placed either below, above, or at the side of the ulcer, and when in vibration are run up in a centripetal direction, their course being either a straight line or a zigzag one.

The speed of the running manipulation should be such as to cover from two to three inches in a second when the finger tips are used, and from four

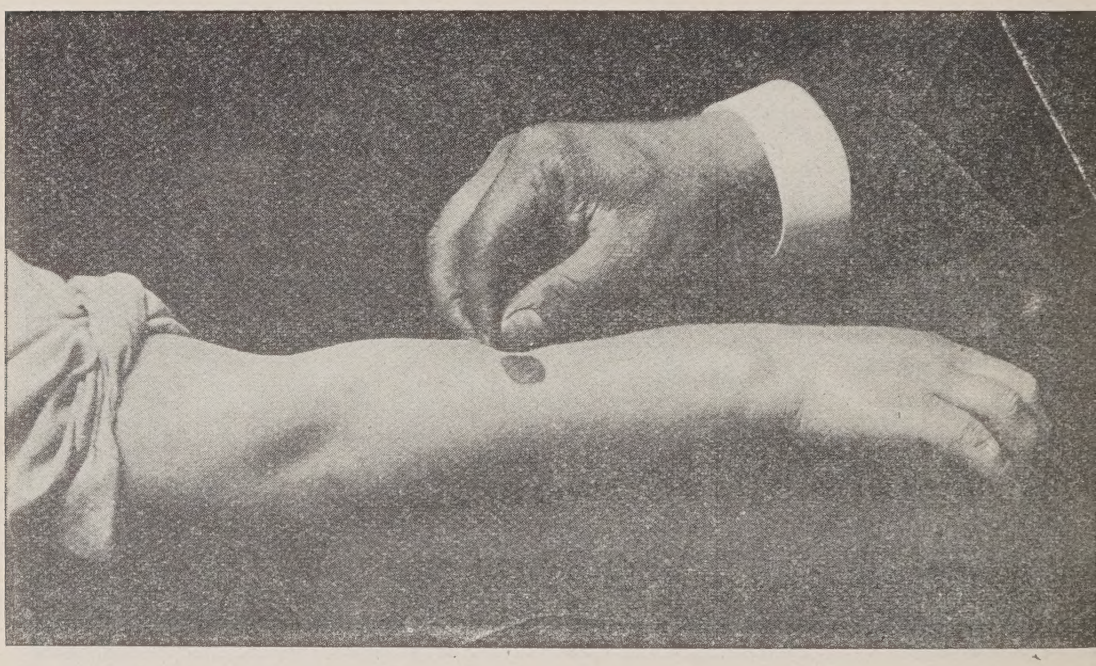

FIG. 8.—Running centripetal vibration, interphalangeal joints of operator are semiflexed.

to five inches in a second when the nails are employed.

6. Nerve frictions. These may be executed either on the cutaneous nerves or on the deeper lying trunks that lead to and from the ulcer. In the case of the latter, the part of the patient's body to be treated is first placed in a position of relaxation.

(a) Stationary frictions are given by placing the finger tips on one side of the nerve trunk and then

drawing them sharply over it, pressure being simultaneously applied. This is repeated several times.

(b) Running frictions are given in very much the same way, but after each friction the fingers are moved up or down the nerve trunk before executing the next. Fig. 9 shows stationary frictions on the posterior interosseous nerve.

Frictions on the cutaneous nerves are applied

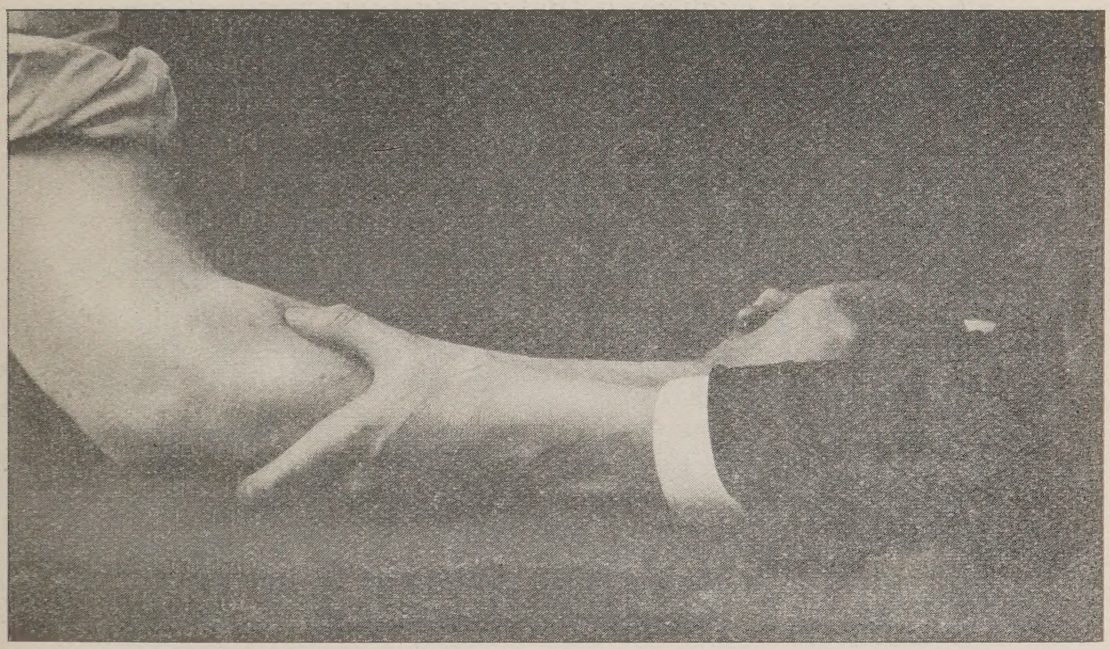

FIG. 9.—Stationary friction.

much in the same way as running centripetal vibrations with the finger nails, as described under (5).

7: Circular kneadings and frictions. If the margins of the ulcer are much indurated, it may be necessary to resort to these manipulations, a piece of lint being interposed between the fingers of the operator and the ulcer.

At first sight the treatment as described in this short synopsis may appear somewhat formidable.

I do not, however, mean to convey the impression that every ulcer should be subjected to each of the manipulations in rotation; every case must be taken on its own merits and a suitable choice of treatment made, regarding which the following hints may be useful:

Concerning the first four forms: Stationary vibrations around the ulcer should be employed only when there is such pain that other forms cannot be tolerated; stationary vibrations on the ulcer are chiefly used to remove pus and debris, which the lint absorbs. Concentrating vibrations and vibrations with alternating to and fro movement should be employed wherever possible; these two manipulations are so closely allied that no hard and fast rules can be laid down for their respective indication. Nos. 5 and 6 I invariably employ, No. 7 only when there is much thickening of the margins (as already mentioned).

The duration of a local treatment as described should usually be from ten to fifteen minutes. The greater part of the time should be devoted to one or more of the first four kinds, Nos. 5, 6, or 7 being generally administered for not more than one or two minutes. Excepting in severe cases the treatment need not, as a general rule, take place more than once daily.

The period necessary to effect a cure varies according to the severity and duration of the case. Recent ulcers require treatment for only a few days; very chronic cases that have obstinately resisted all other methods hardly ever require more than two months.

II.—Local manipulations on the affected limb or part of the body.

In conjunction with local manipulations on and around the ulcer, various passive and active move-

ments of joints will be found of service. Thus, if the ulcer is on the lower leg, passive circumductions of the feet, followed by flexion and extension of the ankle joint (the latter given either purely actively or with resistance) should be prescribed. In addition to these, passive and active flexions and extensions of the knee joint and hip joint, together with circumductory movements of the latter, will be found of benefit. For details of these the reader is referred to the literature on medical gymnastics.

III.—General (constitutional) manipulations.

It is needless to insist here upon the importance of endeavoring to improve the patient's general health while at the same time attacking the local trouble.

A few special symptoms, with regard to their local treatment, may conveniently be considered at this point.

1. Varicose veins. If there exist, say, varicose ulcers and varicose veins in the lower leg, it may be advisable first to empty the veins of their contents by means of elevation of the limb and centripetal passive manipulation before proceeding to the local treatment of the ulcer.

2. Local œdema. The same remarks apply to this as to varicose veins.

3. Sinuses with pus. Not infrequently there occur ulcers covered with unhealthy granulations undermined by sinuses containing pus. In such a case concentrating vibrations should be set up and maintained until the pus is extruded and lymphlike fluid takes its place. It will not be long before the granulations atrophy and fall off, leaving a healthy granulating surface in the floor of the ulcer as well as in the sinuses.

The effects of the foregoing manipulations can be considered both from a purely physiological and also from a clinical point of view.

A.—Physiological effects.

1. Stationary vibrations. The effect of these, stated briefly, is to promote the lymphatic and the venous circulation. To a certain extent there results an exudation of lymph through the margins and floor of the ulcer, and this will help to remove any sloughs that may be present. Whether or not vibrations have a specific effect in increasing the vital activity of the cells and their metabolic processes is somewhat difficult to determine; it is, however, of interest to note that a certain amount of experimental evidence seems to point to the affirmative. V. Marxow (7) held that the slight vibration imparted to the lungs by the cardiac beat was a *sine qua non* for the gaseous interchange. Buttersack (8) concluded that the vibration of the blood in the arteries had the same effect, and Buchheim (9) thought that the vibration of the blood in the aorta had an effect on the cardiac nerves. Shaklee and Meltzer (10) found that shaking caused changes in pepsin, rennin, and trypsin, and they concluded that the shaking caused by respiration was to a certain extent sufficient to cause such changes to take place. I would also refer the reader to Palmen and Rancken's (11) researches quoted later.

2. Concentrating vibrations. The effect of these is similar to that of the stationary ones with the following exceptions: (a) There arises a temporary slight venous stasis around the ulcer, this however being insufficient to cause any harm. (b) The exudation of lymph through the margins and floor of the cavity is much more considerable. (c) The latter causes a much greater tendency towards the separation of slough and debris.

3. Stationary vibration on the ulcer. The effect is as stated in connection with No. 1, with this exception, that the slough and debris will adhere to the lint and thereby be removed with greater facility and cleanliness.

4. Vibration with to and fro movement of the skin.

The effect is the same as that of concentrating vibrations, with the following exceptions: (a) There will be no venous stasis around the ulcer; on the contrary, the venous circulation will be promoted; (b) the amount of lymphatic exudation will be less; (c) there will in consequence be a lesser tendency toward the removal of sloughs and débris.

The effect of the exudation of lymph resulting from the manipulations I have specified is of very great importance. The recent researches upon the opsonic index and the bactericidal power of the blood serum (and lymph) need only be quoted in order to make manifest the importance of this artificially induced exudation. The beneficial effect exerted upon the building up of new tissue is also obvious. In short, as the healing of an ulcer is essentially a question of lymph repair, what better method could be employed than to determine the flow of lymph to the ulcer?

5. Running centripetal vibrations. These promote the lymph and venous flow and diminish the œdema. The cutaneous nerves are stimulated, specially when the nails are employed instead of the fingertips. In all probability they reflexly stimulate repair in the same way that nerve frictions do.

6. Nerve frictions. These increase the nerve functionability and reflexly stimulate the tendency to repair. The vasomotor effect of nerve frictions is still somewhat obscure.

7. Circular kneadings and frictions. Apart from

the promotion of the venous and lymphatic flow, and overgrowth in the margins, supergranulations, etc., are demolished and rendered easy of removal. In all probability there is an increase in the vital activity of the cells. The latest researches (Palmen and Rancken) (11) on the physiological effect of effleurage and pétrissage seem to prove that these manipulations produce their effect through increase in the vital activity of the cells, not through any circulatory changes.

It is unnecessary for me to enter into the effect of the various active and passive movements described under II. The reader is once again referred to the extant literature.

B.—Clinical effects.

These effects may be divided into immediate and remote.

1. Immediate. (a) Subjectively: if pain is present it is removed or diminished. Generally during the course of the manipulations or sometimes only at their conclusion, there arises in the ulcer a feeling of irritation and itching, which is sometimes very intense. This, however, soon passes off (from fifteen minutes to three hours), being replaced by a pleasant sensation; to quote the patient's own words, "it feels as if the place were healing."

(b) Objectively. Diminution in the degree of redness results; an exudation of lymph takes place, as already mentioned; slough and débris are removed. I have more than once seen granulations appear in an ulcer during the actual application of treatment.

2. Remote. Briefly these may be defined as healing. It is of frequent occurrence to observe that ulcers which have for weeks, maybe for

months, resisted all ordinary forms of treatment, show signs of improvement within 24 hours of the first application of the treatment I have described.

In bringing my remarks to a close, I strongly desire to emphasize the fact that the constant successes which for the last ten years have obtained through the treatment of ulcers by means of the method outlined, more than justify the latter's use and I have every confidence in recommending it to the careful consideration of the profession.

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